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to discuss, and to solve, viz., the solution of the general equation of the fifth and other degrees. The book contains some ingenious methods of solving certain numerical equations, but because of these methods it should have received a more modest title.

Mr. McGinnis's solution of the Sixth Degree is quite erroneous. Mr. W. M. H. Woodward, pp. 153-150, professes to have demolished the proof of the impossibility of solving the general quantic by radicals given in Serret's *Algebra Supérieure*. But judging from his conclusion, it appears that Mr. Woodward does not understand the argument put forth in *Algebra Supérieure*. B. F. F.

An Elementary Text-book on the Differential and Integral Calculus. By William H. Echols, Professor of Mathematics in the University of Virginia. 8vo. Cloth, x + 480 pages. Price, \$2.00. New York: Henry Holt & Co.

In this work are very ably treated many interesting subjects not to be found in any other American text-book on the Calculus.

In order to form a connecting link between Algebra and the Calculus, an Introduction presents in an admirable way the fundamental and essential features of Arithmetic and Algebra. In the Introduction are defined and explained such ideas as *absolute number*, *the absolute-number continuum*, *the real-number system*, *the limit of a variable*, etc., ideas upon which rest the whole structure of the Calculus. Throughout the work, in establishing the principles much attention is given to the applications of those principles. An unusually large number of interesting and well selected problems are appended to each section.

The work is divided into two books. Book I treats of functions of one variable, and is divided into four parts. Part I embraces the Principles of the Differential Calculus; Part II applies these principles to Geometry; Part III establishes the Principles of the Integral Calculus, and Part IV embraces the application of these principles. Book II treats of functions of more than one variable. It is divided into three parts. The first part which is Part V of the entire work, embraces Principles and Theory of Differentiation; Part VI applies the principles to surfaces, and Part VII treats of Integration of more than one Variable and Multiple Integration.

Part VI extends the principles of the Calculus to surfaces. Here we have such problems as: To find the principal radii to a surface; To determine the umbilics on a surface, etc. Also here is discussed pretty fully such subjects as spherical curvature, envelopes of surfaces, etc.

The author, while acknowledging that the introduction of a new symbolism is always objectionable, yet feels called upon to introduce the "English pound" mark for the symbol of passing to the limit. This is certainly desirable. But personally we prefer Professor Oliver's symbol, \Rightarrow , for "converging to" or approaches, to Professor Echols's symbol, $(=)$, which he introduces to mean the same thing.

The work is a most valuable addition to the many meritorious books on the same subject which have appeared in recent years. B. F. F.

The School Visitor. Published by John S. Royer & Sons, No. 247 North 17th Street, Columbus, Ohio. Price per year, \$1.00, payable in advance.

The Mathematical Department is full of good problems for the teacher of Arithmetic, Algebra and Geometry. Mr. Royer is the author of a Higher Mental Arithmetic, a Geography, and several other books of great interest and value to teachers. B. F. F.

ERRATA.

Vol. IX, page 207, problem 106, Diophantine Analysis, for "rational triangle" read, *rational right triangle*.

Vol. IX, page 264, last line of solution of problem 100, for "determinate" read, *indeterminate*; page 265, equation for " $Ay'q +$ " read $Ay' + q$.